# Bumble Plot™

*Author/Designer:*
*Leslie Grimm, Ph.D.*

*The Learning Company*
*545 Middlefield Road*
*Menlo Park, CA 94025*

# Bumble Plot

*Bumble Plot runs on:*

- ☐ Apple II, 48K with Applesoft or Language Card
- ☐ Apple II+, 48K
- ☐ Apple IIe (with CAPS LOCK key down)

*With:*

- ☐ Disk ] [
- ☐ Monitor or TV (color recommended)

*For:*

- ☐ Ages 8-13

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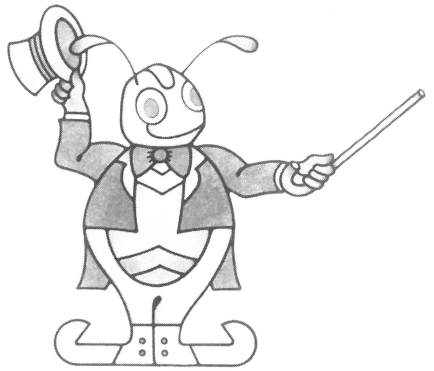
## WELCOME TO BUMBLE PLOT



Meet Bumble, a friendly creature from the planet Furrin, who has some challenging games for you. Each game helps you learn to identify points on lines and grids. You will need this skill to find places on maps and to read or make charts and graphs. Bumble will also help you understand the meaning of negative and positive numbers and to see what is meant by a number being greater or less than another.

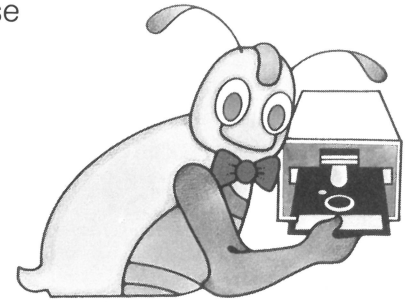
Play the games and you will become a powerful number-pair plotter! You can also learn about computer graphics as you draw pictures with your computer.

If this is the first time you have used Bumble Plot, start at the beginning and take your time. Play each game in order so you can learn everything step by step.

P.S. Some people may think that Bumble Plot is just for fun. To see what you are learning, turn to THE LEARNING LIST on page 16.

## GETTING STARTED

Put your Bumble Plot disk in the disk drive and close the door. Turn on the computer.

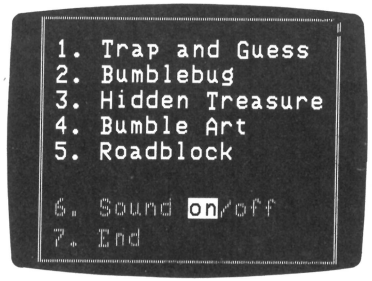


**If you are using an Apple IIe computer, be sure the CAPS LOCK key is pressed down. You need all capitals to play.**

### *CHOOSING A GAME:*

You will see a list of games. This is called the "menu." The games are listed in order of difficulty, from 1 to 5. You learn something in each game that helps you play the next game. If this is the first time you have played Bumble Plot, begin with game 1 and play the games in order.

Press the number of the game you choose. Wait for it to load.




### *SOUND OPTION:*

Notice the number 6 on the menu. The white box around "ON" tells you the games will have sound. Press [6] to turn off the sound. Press [6] again to turn the sound back on.



### *ANSWERING BUMBLE'S QUESTIONS:*

Every game starts with a question: "WOULD YOU LIKE INSTRUCTIONS? (Y OR N)?" The question is followed by a blinking square. This is your "cursor." It is a signal for you to respond. Press [Y] for "YES." Press [N] for "NO."

### *SPECIAL KEYS:*

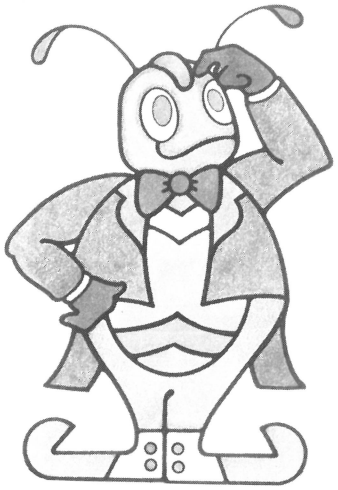
When you are playing a game you can:

- press [ESC] to return to the menu to choose another game.
- press [SHIFT] and [?] at the same time to see the game's instructions.

[SPACEBAR] can be pressed in some games to skip the opening pictures. This lets you move immediately to the game.

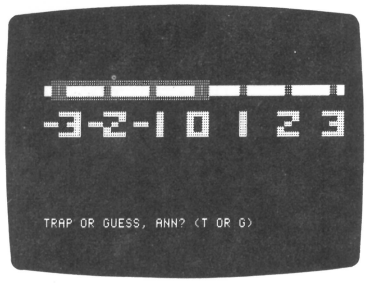
# THE GAMES

## 1. TRAP AND GUESS



This game can be played alone or with a friend. Let Bumble know how many are playing. Press [1] or [2]. If two are playing, type in your name and have your friend type in his or her name. Bumble will have a different secret number for each of you.

You will see a line with numbers below. This is called a "number line." it shows negative and positive numbers. Bumble says "-1, -2, -3 are negative numbers. You use them when you count backwards past zero (0). For example, 3, 2, 1, 0, -1, -2, -3 . . ."




Bumble is thinking of a secret number. It is somewhere on the number line. First, try to trap the number. For example, make a trap from -3 to 0. To name a negative number press the minus key [—] on the top row of your keyboard. Then press the number key.

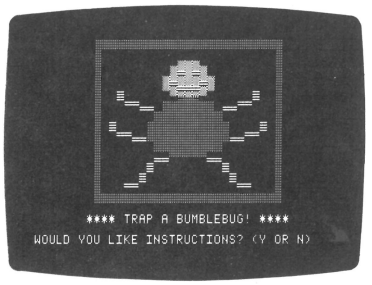
Trap the number by typing two numbers, one on each side of the number you guess. Bumble will draw a trap. One color (red) means the number is trapped. Another color (orange) means the number is outside the trap. Now you may press:

[G] to guess a number

[T] to make a tighter trap.



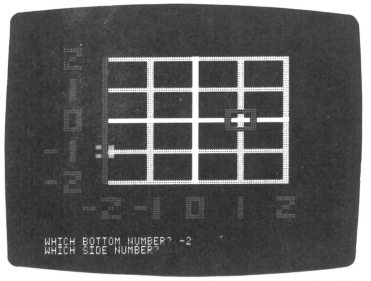
## 2. BUMBLEBUG




Can you trap the bumblebug? Put a trap beside the bug. If the bug hops in, you trap it.

On your screen you will see a grid with lines numbered from -2 to +2. A "point" is where two lines cross. Look for the "X" shape sitting on a point on your grid. That's the bumblebug! It is about to hop to another point on your grid.

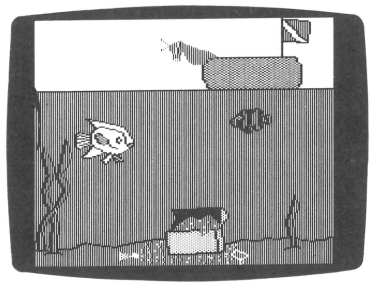
Guess where the bumblebug will hop next. Name that point:




- ☐ First, type a bottom number. (Use the [—] key for a negative number.) Watch the line light up.
- ☐ Next, type the side number.

The open red square will move to the point you named. This square is your trap. Will the bumblebug hop in your trap? You win if it does. If it doesn't, keep trying.

## 3. HIDDEN TREASURE



Can you find Bumble's undersea treasures? You can use Bumble's special map that gives word clues and arrows to help you explore.

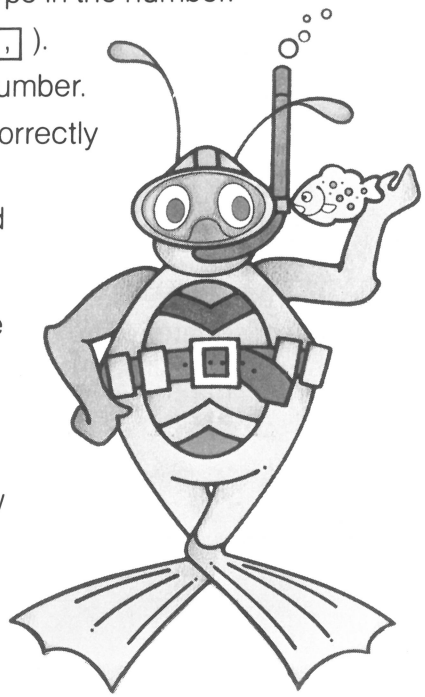
The map goes from -5 to +5 in two directions.

- ☐ The left to right direction is called the "X axis."
- ☐ The up and down direction is called the "Y axis."

Guess a point where a treasure might be. Name that point by giving its distance in each direction.

- ☐ Start with the X axis. Type in the number.
- ☐ Next, type a comma ( [,] ).
- ☐ Then type the Y axis number.

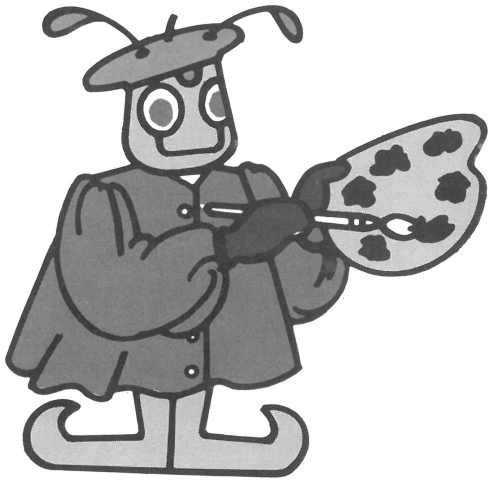
Here is an example of a correctly typed number pair: -2,3.



Watch the moving dot land on the point you name. Is that the point you want? If not, press [←] to erase your numbers. Type a different number pair. Don't forget the comma! If the dot is where you want it, press [RETURN]. Arrow and word clues will help you locate the undersea treasure.



## 4. BUMBLE ART



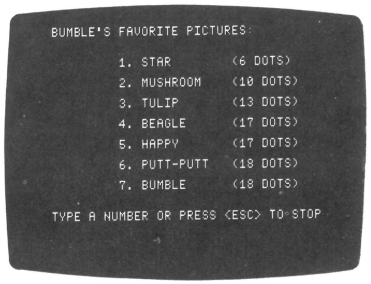
Welcome to Bumble's art class. Name dots one at a time. Make a great picture as Bumble draws connecting lines between the dots you name.

Bumble gives you two choices:

- ☐ Press [1] to draw some of Bumble's favorite pictures.
- ☐ Press [2] to make your own pictures.

## BUMBLE'S FAVORITE PICTURES:

If you choose [1], you will first see a list of Bumble's favorite pictures.

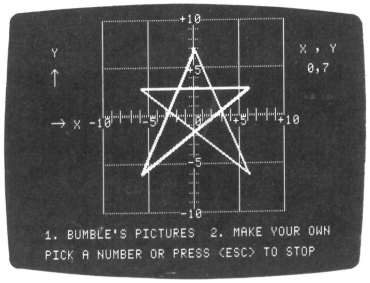

BUMBLE'S FAVORITE PICTURES:
1. STAR (6 DOTS)
2. MUSHROOM (10 DOTS)
3. TULIP (13 DOTS)
4. BEAGLE (17 DOTS)
5. HAPPY (17 DOTS)
6. PUTT-PUTT (18 DOTS)
7. BUMBLE (18 DOTS)
TYPE A NUMBER OR PRESS <ESC> TO STOP

- ☐ Choose a picture. Type its number. Bumble will show you a dot on the screen.

- ☐ Name the dot by typing its number pair. First type the X number. Then type a comma [,]. Next type the Y number.

  (Example: -5,2)

  Use the [—] key for negative numbers.




- ☐ Keep naming the dots Bumble shows you. Bumble will draw a line connecting each one. If you make a mistake, Bumble will tell you how to correct it. Watch the picture grow!

Bumble will color your finished picture and ask you what you want to do next.

- ☐ Press [1] to choose another Bumble picture.
- ☐ Press [2] to make your own picture.
- ☐ Press [ESC] to stop.



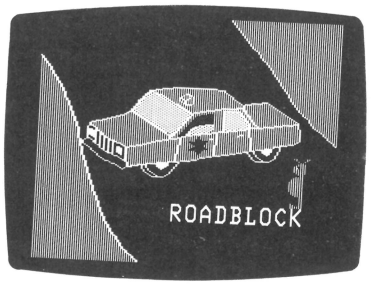
## MAKE YOUR OWN PICTURES:

Press [2] to make your own pictures. Each picture can have from 3 to 20 dots.

- ☐ When Bumble says, "ENTER DOT #1," type in your your first dot. Remember to type the X number, comma, and then the Y number. Your dot will appear on the screen. If this is where you want it, press [RETURN]. To change the dot, press [←].
- ☐ After each dot, Bumble will show you how many dots are left. If you don't want 20 dots, just press [RETURN] instead of naming a dot.
- ☐ Bumble will continue connecting the dots you name until all your dots are on the grid or until you have 20 dots. Bumble will ask you to name your finished picture.
- ☐ Bumble will ask if your friend wants to make your picture. If your answer is "NO," then Bumble will color your picture and play a tune for you.
- ☐ If your answer is "YES," have your friend follow the instructions for Bumble's Favorite Pictures.
- ☐ If you want to change pictures after you have started making a picture, press [ESC].

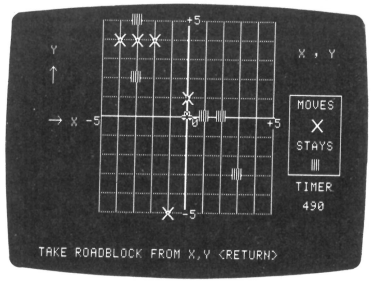
## *5. ROADBLOCK*

Help Police Chief Bumble catch the bank robber. Use the computerized map. The moving object is the robber escaping as fast as possible. If the robber reaches any one of the edges of the map, the game is over. The game also ends if time runs out before you trap the robber.




## CLOSE THAT ROBBER IN ON ALL SIDES!

Move the white X's. These are your roadblocks. Use them to surround the robber. The red blocks are dead end streets. You can't move these, but they can help block off the getaway car.






## HOW DO YOU PLAY?

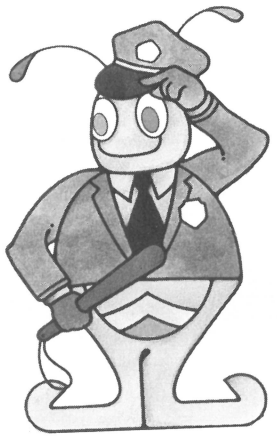
- ☐ The clock is ticking. The robber is speeding away. Press [SPACEBAR] to stop the action.
- ☐ Choose which roadblock to move. Name the point where it is now. First type the X (left to right/ horizontal) number. Next, type comma [,]. Then type the Y (up and down/ vertical) number.
- ☐ Decide where to put the roadblock. Name the X,Y point where you want it to go.

**Stay alert!**

The moment the roadblock is in position, the robber starts moving again. Press [SPACEBAR] to stop the clock. Then put down another roadblock. Try to maneuver the robber up against a dead end street.

You are working against the clock. You can run out of time as well as lose the robber over the edge. That's what the clicking numbers are all about.

Be prepared for a fast-moving chase.

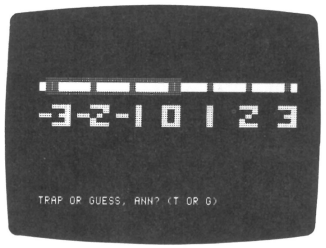


# THE LEARNING LIST

Here are some of the things you can learn game by game. Each game teaches you something that helps you in playing the next. The games are numbered in order from simplest to most challenging. If you are just beginning, be sure to start with game 1, then 2, and so on. Take your time. Let Bumble show you everything step by step.

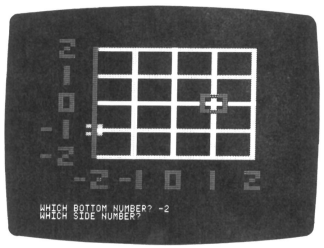
| GAMES | SKILLS AND CONCEPTS PRESENTED |
|---|---|

## 1. TRAP AND GUESS




- ☐ Using positive and negative numbers from -3 to +3.
- ☐ Identifying positive and negative locations on a number line.
- ☐ Identifying a number as greater or less than another.
- ☐ Making predictions.
- ☐ Discovering game strategies.
- ☐ Developing reasoning skills.

## 2. BUMBLEBUG

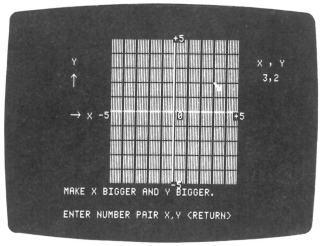



- ☐ Using positive and negative numbers from -2 to +2 to identify points.
- ☐ Plotting points on a four-quadrant grid.
- ☐ Developing spatial awareness.



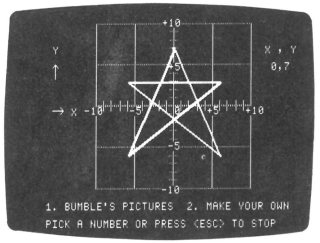
| GAMES | SKILLS AND CONCEPTS PRESENTED |
|---|---|

## 3. HIDDEN TREASURE



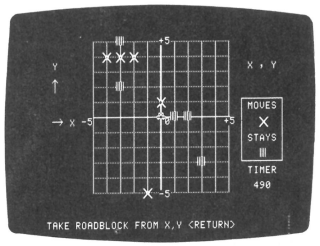

- ☐ Using positive and negative numbers from -5 to +5.
- ☐ Plotting points on a four-quadrant grid.
- ☐ Using standard number pair notation (i.e., X,Y).
- ☐ Developing spatial awareness.
- ☐ Understanding concepts of greater than and less than with respect to positive and negative numbers.
- ☐ Making predictions.
- ☐ Developing reasoning skills.

## 4. BUMBLE ART




- ☐ Using positive and negative numbers from -10 to +10.
- ☐ Using standard number pair notation (X,Y).
- ☐ Identifying and plotting points on a four-quadrant grid.
- ☐ Developing spatial awareness.
- ☐ Understanding the concept of greater than and less than.
- ☐ Using computer graphic techniques.
- ☐ Creating original graphics.

## 5. ROADBLOCK




- ☐ Using positive and negative numbers.
- ☐ Using standard number pair notation.
- ☐ Identifying and plotting points on a four-quadrant grid.
- ☐ Developing spatial awareness.
- ☐ Developing reasoning skills and making predictions.

## ADDITIONAL ACTIVITIES

### *FLIP THE KITE:*

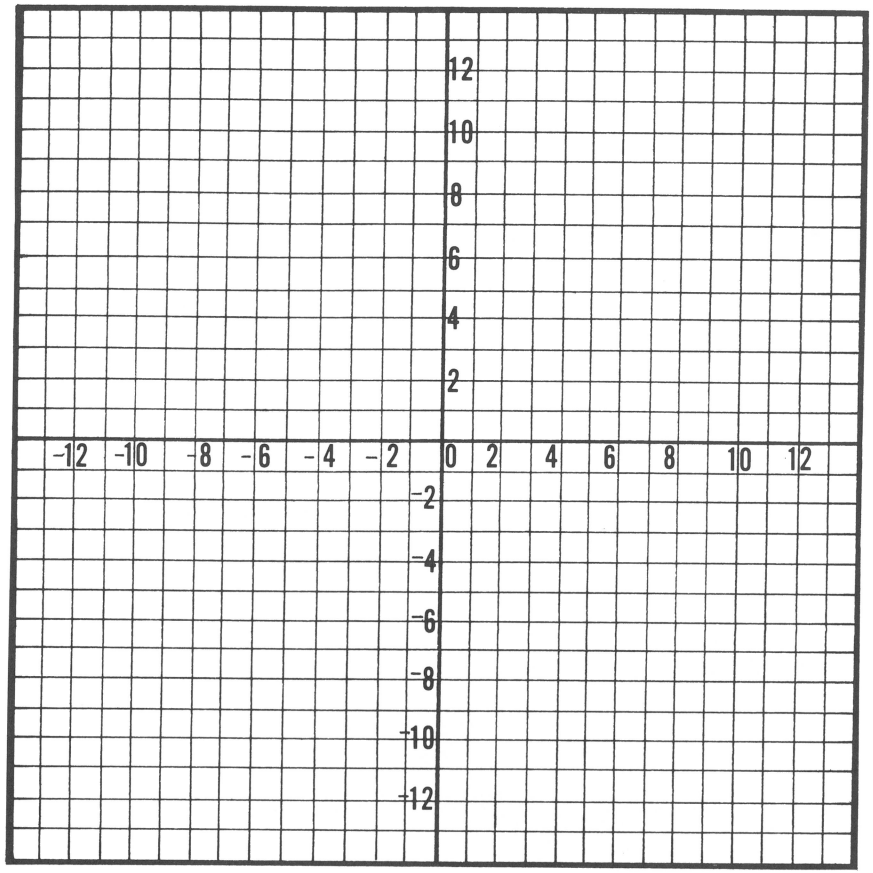
This is like Bumble Art. It's a connect-the-dot picture puzzle with an unusual twist. First you use number pairs to plot points on a grid, connecting the dots from point to point to find the picture. Then you change the signs of one or both numbers in each number pair. For each change you replot the picture using the transformed numbers. Something will happen to the picture. Try it to see.

Photocopy the grid on the opposite page. Plot these points on your grid and connect the dots. You should end up with a kite.

| POINTS FOR KITE |
|---|
| 1. **2,0** |
| 2. **4,1** |
| 3. **3,2** |
| 4. **5,3** |
| 5. **4,5** |
| 6. **10,9** |
| 7. **10,13** |
| 8. **6,13** |
| 9. **4,5** |

Make all the X numbers negative numbers. For example: change 2,0 to -2,0. Change 4,1 to -4,1. Do this for each of the above number pairs. Then plot the picture again, using your new set of points. What happens? Do you flip the kite?





Make different rules for the same set of number pairs:

**Change the Y numbers to negatives.**

Example: Change 4,1 to 4,-1.
Change 3,2 to 3,-2.

**Change both numbers to negatives.**

Example: Change 4,1 to -4,-1
Change 3,2 to -3,-2.

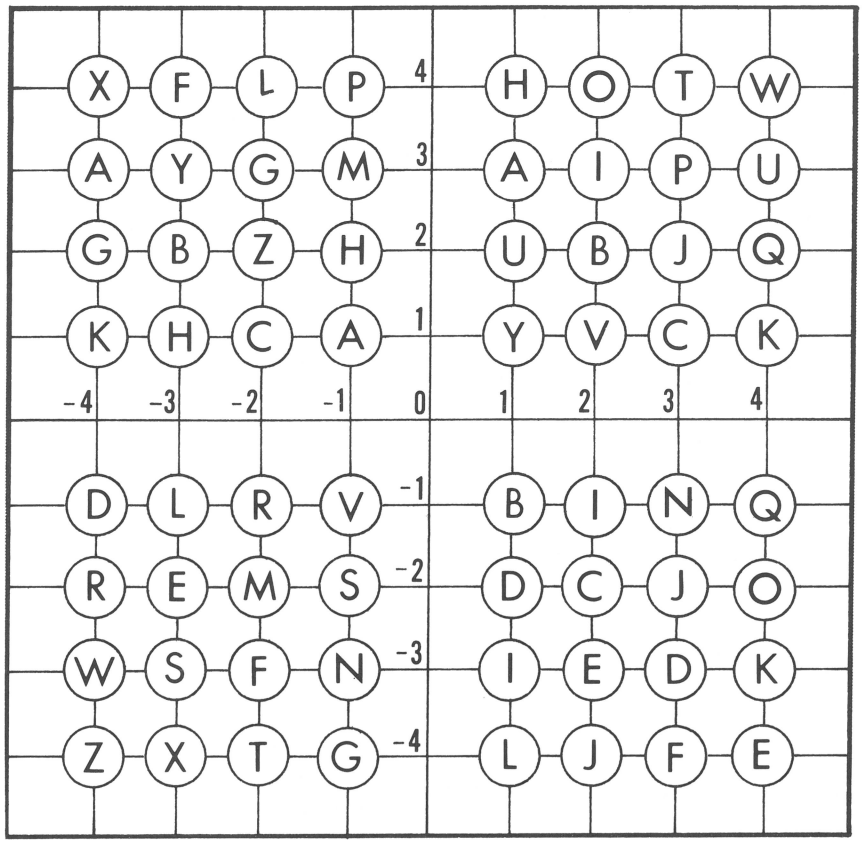
Plot the picture with each new set of points. Can you guess how the pictures will turn out?

## *SECRET MESSAGE GRID:*

Here is a secret message grid. Make two copies of the grid on the opposite page, one for you and one for a friend. Think of a secret message to send to your friend. Write the number pair for each letter of your message under its blank. Here is what one secret message looks like. Use the grid to decode it.

| | | | | | |
|---|---|---|---|---|---|
| **4,1** | **-3,-2** | **4,-4** | **-1,4** | | |
| **-3,3** | **2,4** | **1,2** | **-2,-1** | | |
| **-4,2** | **-4,-2** | **2,-1** | **1,-2** | | |
| **-1,2** | **2,3** | **1,-2** | **-4,-1** | **4,-4** | **3,-1** |





## SPECIAL KEYS

| KEY | FUNCTION |
|---|---|
| ESC | Allows you to return to the menu. In Bumble Art ESC allows you to change pictures. |
| SHIFT ? | Returns you to instructions for the game you are playing. (You must press SHIFT and ? at the same time.) |
| SPACEBAR | Lets you skip opening pictures in some games. Stops the action in Roadblock. |
| ← | Erases mistakes if you have not yet pressed RETURN. |
| RETURN | Press this key only when prompted to enter your number pairs and other responses. Returns you from instructions to a game. |

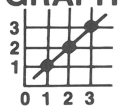
**SOUND OPTION:**

| | |
|---|---|
| 6 | Turns sound on or off. (You must return to the menu to make 6 work.) |



## GLOSSARY

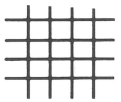
**GRAPH**




**Example:**
**1,1; 2,2; 3,3**

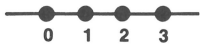
A set of points associated with a given set of numbers or number pairs.

**GRID**



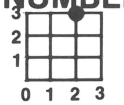
A set of intersecting lines, usually at right angles.

**NUMBER LINE**




A line with number points that shows the order between numbers and that helps demonstrate which numbers are greater or less than other numbers.

**NUMBER PAIR**




**Example: 2,3**

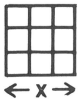
In Bumble Plot, a pair of negative and/or positive whole numbers that name a point on a grid. (X,Y)

**POINT**

●

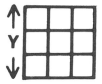
Shown by a dot in Bumble Plot to mark a location on a grid. The position is named by a number pair.

**X AXIS**




In this program, the horizontal direction on a grid. The X number names a horizontal distance from zero.

**Y AXIS**




In this program, the vertical direction on a grid. The Y number names a vertical distance from zero.

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